



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|   |           |  |
|---|-----------|--|
| <b>(51) International Patent Classification 7 :</b><br><b>H01J 49/04</b>  | <b>A1</b> | <b>(11) International Publication Number:</b> <b>WO 00/48228</b><br><b>(43) International Publication Date:</b> 17 August 2000 (17.08.00)  |
| <b>(21) International Application Number:</b> PCT/GB00/00301<br><b>(22) International Filing Date:</b> 2 February 2000 (02.02.00)<br><b>(30) Priority Data:</b><br>9903138.7 11 February 1999 (11.02.99) GB<br><b>(71) Applicant (for all designated States except US):</b> MASSLAB LIMITED [GB/GB]; Crewe Road, Wythenshawe, Manchester M23 9BE (GB).<br><b>(72) Inventor; and</b><br><b>(75) Inventor/Applicant (for US only):</b> GILES, Roger [GB/GB]; 5 Wynstay Court, Newcastle under Lyme, Staffordshire ST5 4HL (GB).<br><b>(74) Agent:</b> BOULT WADE TENNANT; Venum Gardens, 70 Gray's Inn Road, London WC1X 8BT (GB).  |           | <b>(81) Designated States:</b> CA, JP, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).<br><b>Published</b><br><i>With international search report.</i> |
| <b>(54) Title:</b> ION SOURCE FOR MASS ANALYSER   |           |  |
| <b>(57) Abstract</b>  |           |  |
| <p>An ion source for a mass spectrometer includes an atmospheric pressure sample ioniser (20), arranged to generate ionised sample droplets for ingress into an ion block (50). The block (50) has an entrance orifice cone (70) in communication with an inlet channel (60), and an outlet channel (80) which has a first end that intersects the inlet channel (60) at 90° thereto. The other end of the outlet channel (80) opens into an evacuation chamber (90) which is pumped via a rotary vacuum pump (110). The reduced pressure within the channels of the ion block (50) draws sample droplets therethrough. An exit orifice defined by an exit orifice cone (130) is formed in the outlet channel (80) and sample ions pass through into a mass analyser region (180). The right-angle bend between the inlet and outlet channels introduces turbulence and promotes desolvation. Streaming of droplets from the entrance cone (70) to the exit cone (130) is also prevented.</p> |           |  |
|   |           |  |